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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/990,991

11/16/2001

Daniel C. Baker

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(VLSI.273DIV1)

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09/11/2003

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EXAMINER

KOCH, GEORGE R

ART UNIT

PAPER NUMBER

1734

DATE MAILED: 09/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/990,991

Applicant(s)

BAKER, DANIEL C.

Examiner

George R. Koch III

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1734

-- The MAILING DATE of this communication appears on the cov r sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8-12-2003 has been entered.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangarajan et al (US Patent 6,376,013) and Pollak et al (US 5,270,797)

As to claims 1 and 2, Rangarajan discloses means for illuminating the substrate (item 68), in the form of a light source, two state means for adjusting the illuminating by

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turning item 68 on and off (item 66), and means for controlling the dispensing of material as a function of the adjusted illumination (item 74 - See Figure 2 for entire system) in the form of a controller coupled to the light source. Rangarajan does not disclose using a plurality of illumination intensities, or controllers for adjusting the illumination intensities.

Pollak discloses using a plurality of illumination intensities (see item 18), and controllers for adjusting the illumination intensities (items 21). Pollak discloses that such structures allow for achievement of a "normalization" of the intensity value which improves detection functioning. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized multiple intensities and control structures associated therewith in order to improve detection functioning.

5. Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rangarajan and Pollak as applied to claims 1 and 2 above, and further in view of Sanada (US Patent 5,985,357).

Rangarajan uses a fiber optic line, but does not disclose if the sensor (item 72) at the end of the fiber optic line is a photodiode. Rangarajan merely describes the sensor functioning as being any known spectrometry or interferometry system.

Sanada discloses a known interferometry system utilizing a photodiode (6c, see column 6, lines 39-42) for illuminating the substrate much as in Rangarajan. Sanada discloses that the photodiode system in conjunction with a photoresist deposition method (see column 6, lines 42-61). Therefore, it would have been obvious to one of

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ordinary skill in the art at the time of the invention to have utilized a photodiode as the sensor in Rangarajan in order to provide functioning during the monitoring of a photoresist deposition method.

As to claims 3 and 5, the use of non-reflective walls for the chamber and other elements is well known and conventional in photoresist applications. Photoresist by definition reacts to light, usually by hardening, and non-reflective coatings on the chamber would reduce the amount of light impinging the photoresist during the photoresist application step, which occurs prior to the photoresist hardening step. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure that only the minimum amount of light needed for sensory operations strikes the photoresist, to reduce hardening by making the interior of the chamber nonreflective.

As to claim 7, Rangarajan and Pollak as applied to claims 1 and 2 above make obvious the combination of the light source, the dispenser and controller as claimed. Rangarajan and Pollak, however, do not disclose a first detector that can detect initial contact of the material with the substrate.

Sanada discloses a sensor (item 40) which is capable of monitoring the initial contact of the dispensed liquid. One in the art would appreciate that such a sensor would allow overall visual inspection of the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such a sensor in order to improve dispensing control.

As to claim 8, Rangarajan and Pollak both disclose intensity sensors (item 70 for Rangarajan, item 56 for Pollak).

Response to Arguments

6. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

7. With regard to the petition under 37 CFR 1.131, it is noted that Rangarajan was filed on October 9th, 1999, and that the applicant has only sworn back to October 28th, 1999.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (703) 305-3435 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



George R. Koch III
September 4, 2003



RICHARD CRISPINO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700